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(दूसरा पुनरीक्षण)

Indian Standard

WIRE ROPES USED IN OIL WELLS AND OIL WELL DRILLING — SPECIFICATION

(Second Revision)

ICS 75.180.10; 77.140.65

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

November 2001

Price Group 8

Wire Ropes and Wire Products Sectional Committee, ME 10

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Wire Ropes and Wire Products Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first issued in 1968 and revised in 1977. The experience gained in the implementation of the standard since its last revision necessitated the present revision. In the present revision rope/strand description have been suitably modified, requirement of lubrication is added and all the tables have been revised in line with IS 6594 : 2001 'Technical supply conditions for steel wire ropes and strands (*second revision*)' using K and K' factors and new rope description. In construction 8 × 25F, use of fibre core in the rope is deleted.

The wire ropes covered in this standard are suitable for the following oil field uses:

a) Rod and tubing pull lines,

b) Rod hanger lines,

c) Sand lines,

d) Cable-tool drilling, cleanout and cleaning lines,

e) Rotary drilling lines,

f) Winch lines,

g) Horsehead pumping unit lines, and

h) Torpedo lines.

The requirements for galvanized wire strands and well measuring wire, though they do not come under the definitions of wire ropes are also covered.

The composition of the Committee responsible for formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard
WIRE ROPES USED IN OIL WELLS AND OIL WELL DRILLING — SPECIFICATION
(Second Revision)

1 SCOPE

This standard covers requirement for wire ropes, wire strands and wire for use in oil wells and oil well drilling.

The following constructions, rope/strand grades, core and size ranges are covered (identified by × mark):

Construction	*Rope/Strand Grade*					*Core*		*Size Range* mm	*Table No.*
	450	1230	1570	1770	1960	Fibre	Steel		
6×7 (6–1)	—	—	×	×	—	×	—	8 to 26	1
6×19 S (9–9–1)	—	—	×	×	×	×	×	13 to 40	2
6×25 S (9–9/6–1)	—	—	×	×	×	×	×	20 to 40	2
6×19 W (6+6–6–1)	—	—	×	×	×	×	×	13 to 40	2
6×21 F (10–5F–5–1)	—	—	×	×	×	×	×	13 to 40	3
6×25 F (12–6F–6–1)	—	—	×	×	×	×	×	13 to 40	3
6×26 SW (10–5+5–5–1)	—	—	×	×	×	×	×	13 to 44	4
6×31 SW (12–6+6–6–1)	—	—	×	×	×	×	×	13 to 48	4
6×36 SW (14–7+7–7–1)	—	—	×	×	×	×	×	13 to 74	4
6×41 SW (16–8+8–8–1)	—	—	×	×	×	×	×	38 to 74	4
6×49 SW (16–8+8–8–8–1)	—	—	×	×	×	×	×	38 to 74	4
8×21 F (10–5F–5–1)	—	—	×	×	×	—	×	13 to 32	5
8×25 F (12–6F–6–1)	—	—	×	×	×	—	×	13 to 32	5
18×7 (6–1) (12×7 : 6×7)	—	—	×	×	×	×	—	13 to 26	6
5×5 (4–1)	—	—	×	×	—	×	—	3 to 8	7
5×7 (6–1)	—	—	×	×	—	×	—	3 to 8	8
Galvanized guy strand									
1×3 (3–0)	—	×	—	—	—	—	—	6.2, 8.3 and 9.3	9A
1×7 (6–1)	×	×	×	—	—	—	—	3 to 16	9B
1×19 M (12/6–1) or 1×19 J (12 : 6–1)	×	×	×	—	—	—	—	13 to 25	9C
1×37 M (18/12/6–1) or 1×37 J (18 : 12 : 6–1)	×	×	×	—	—	—	—	25 to 32	9D
Well measuring wires	—	—	—	—	—	—	—	1.7 to 2.36	10

NOTE — 5 × 5 and 5 × 7 ropes are for Torpedo lines.

2 REFERENCES

The following standards contain provisions, which through reference in this text constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
280 : 1978	Mild steel wire for general engineering purposes (*third revision*)
2363 : 1981	Glossary of terms relating to wire ropes (*first revision*)
6594 : 2001	Technical supply conditions for steel wire ropes and strands (*second revision*)

3 TERMINOLOGY

For the purpose of this standard, in addition to the following the definitions given in IS 2363 shall apply.

3.1 Rod

A bar, the end of which is slotted, tapered or screwed for the attachment of drill bit.

3.2 Rotary Drilling

A method of drilling in which rotation and thrust are applied to the bit, producing a continuous cutting action.

3.3 Torpedo Line

A small diameter galvanized wire rope used to lower the explosive down the hole when digging a well.

3.4 Tubing Line

A wire rope used for running in or pulling oil well rod and tubing.

4 SIZE

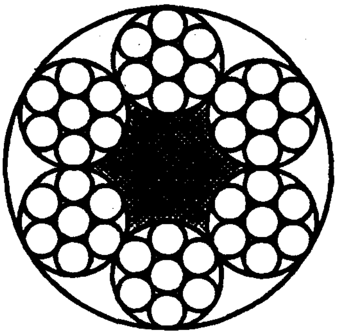
The size of wire rope, strand or wire, designated as 'nominal diameter', shall be one of those given in Tables 1 to 10.

5 MINIMUM BREAKING FORCE

Minimum breaking force shall be as given in Tables 1 to 10.

Table 1 Size, Breaking Force and Mass for 6 × 7 (6–1) Construction

(*Clauses* 4, 5 *and* 6.4)



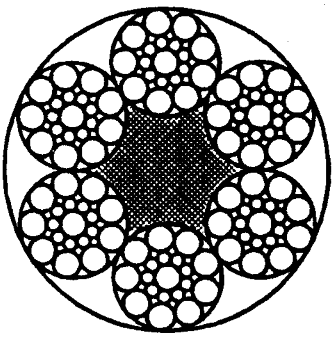
6x7(6-1)-CF

Nominal Rope Diameter	**Approximate Mass**	**Minimum Breaking Force Corresponding to Rope Grade of**	
$^{+4}_{-1}$ Percent	Fibre Core (CF)	1570	1770
		Fibre Core (CF)	
(1)	(2)	(3)	(4)
mm	kg/100 m	kN	kN
8	22.9	33.4	37.6
9	28.9	42.2	47.6
10	35.7	52.2	58.8
11	43.2	63.1	71.1
12	51.5	75.1	84.7
13	60.4	88.1	99.4
14	70.1	102	115
16	91.5	134	151
18	116	169	191
19	129	188	212
20	143	209	235
22	173	252	285
24	206	300	339
26	242	353	397

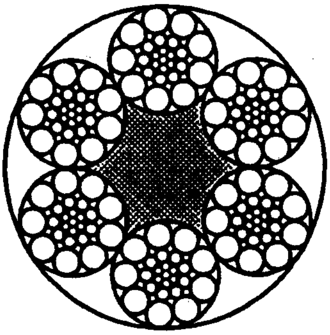
NOTE — To calculate the aggregate breaking force, multiply the figures shown in columns 3 and 4 by 1.111.

Table 2 Size, Breaking Force and Mass for 6 × 19 S (9–9–1), 6 × 25 S (9–9/6–1) and 6 × 19 W (6+6–6–1) Construction

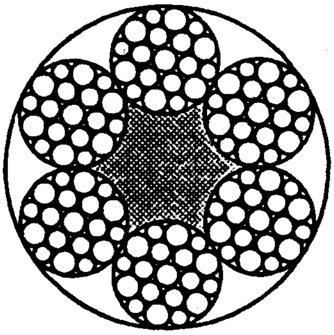
(*Clauses* 4, 5 *and* 6.4)



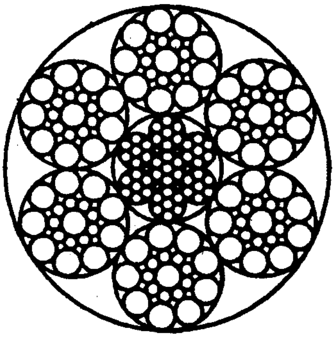
6x19 S (9-9-1)-CF



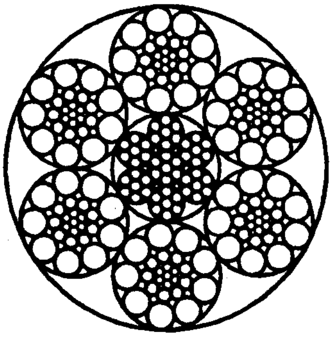
6x25 S (9-9/6-1)-CF



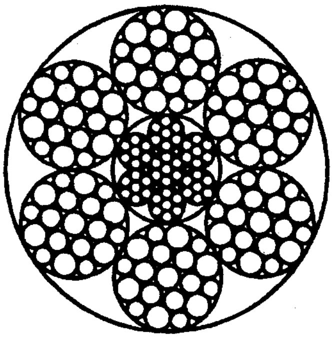
6x19 W (6+6-6-1)-CF



6x19 S (9-9-1)-CWR



6x25 S (9-9/6-1)-CWR



6x19 W (6+6-6-1)-CWR

Nominal Rope Diameter +4 −1 Percent	Approximate Mass		Minimum Breaking Force Corresponding to Rope Grade					
			1570		1770		1960	
	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
mm	kg/100 m		kN	kN	kN	kN	kN	kN
13	63.0	69.3	87.8	94.8	99.0	107	110	118
14	73.0	80.3	102	110	115	124	127	137
16	95.4	105	133	144	150	162	166	179
18	121	133	168	182	190	205	210	227
19	135	148	188	203	211	228	234	253
20	149	164	208	224	234	253	260	280
22	180	198	252	272	284	306	314	339

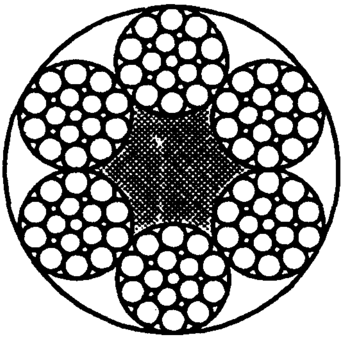
Table 2 (*Concluded*)

Nominal Rope Diameter $^{+4}_{-1}$ Percent	**Approximate Mass**		**Minimum Breaking Force Corresponding to Rope Grade**					
			1570		1770		1960	
	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24	215	236	299	323	337	364	374	403
26	252	277	351	379	396	428	439	474
28	292	321	407	440	459	496	509	549
29	313	345	437	472	493	532	546	589
32	382	420	532	575	600	648	664	717
35	456	502	637	687	718	775	795	858
36	483	531	673	727	759	820	841	908
38	538	592	750	810	846	913	937	1 012
40	596	656	831	898	937	1 012	1 038	1 121

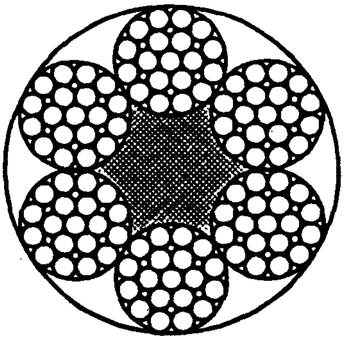
NOTE — To calculate the aggregate breaking force, multiply the figures shown in columns 4, 6 and 8 by 1.163 and columns 5, 7 and 9 by 1.25.

Table 3 Size, Breaking Force and Mass for 6 × 21 F (10–5F–5–1) and 6 × 25 F (12–6F–6–1) Construction

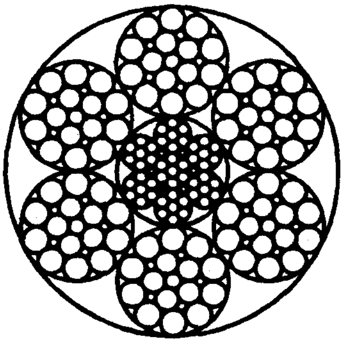
(*Clauses* 4, 5 *and* 6.4)



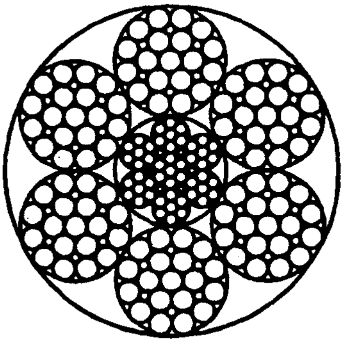
6x21 F (10-5F-5-1)-CF



6x25 F (12-6F-6-1)-CF



6x21 F (10-5F-5-1)-CWR



6x25 F (12-6F-6-1)-CWR

Nominal Rope Diameter $^{+4}_{-1}$ Percent	Approximate Mass		Minimum Breaking Force Corresponding to Rope Grade					
			1570		1770		1960	
	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
mm	kg/100 m		kN	kN	kN	kN	kN	kN
13	64.3	70.7	89.6	96.8	101	109	112	121
14	74.5	82.0	104	112	117	127	130	140
16	97.3	107	136	147	153	165	169	183
18	123	135	172	186	194	209	214	232
19	137	151	191	207	216	233	239	258
20	152	167	212	229	239	258	265	286
22	184	202	257	277	289	312	320	346

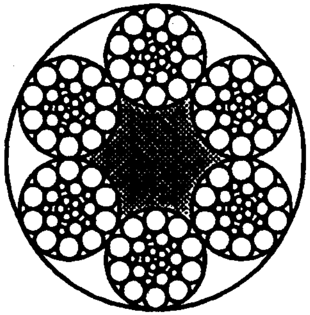
Table 3 (*Concluded*)

Nominal Rope Diameter $^{+4}_{-1}$ Percent	Approximate Mass		Minimum Breaking Force Corresponding to Rope Grade					
			1570		1770		1960	
	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24	219	241	305	330	344	372	381	412
26	257	283	358	387	404	436	447	483
28	298	328	416	449	469	506	519	560
29	320	352	446	482	503	543	557	601
32	389	428	543	586	612	661	678	732
35	466	512	649	701	732	791	811	876
36	493	542	687	742	775	837	858	926
38	549	604	766	827	863	932	956	1 032
40	608	669	848	916	956	1 033	1 059	1 144

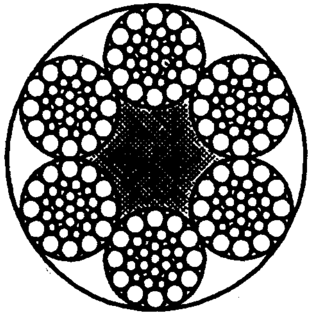
NOTE — To calculate the aggregate breaking force, multiply the figures shown in columns 4, 6 and 8 by 1.163 and columns 5, 7 and 9 by 1.25.

Table 4 Size, Breaking Force and Mass for 6 × 26 SW (10–5+5–5–1), 6 × 31 SW (12–6+6–6–1), 6 × 36 SW (14–7+7–7–1), 6 × 41 SW (16–8+8–8–1) and 6 × 49 SWS (16–8+8–8–8–1) Construction

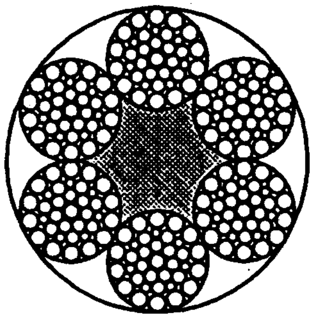
(*Clauses* 4, 5 *and* 6.4)



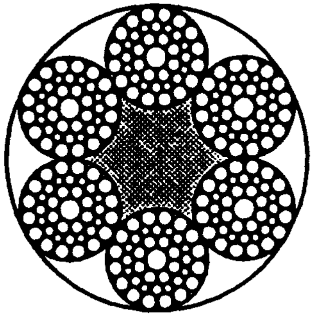
6x26 SW (10–5+5–5–1)–CF



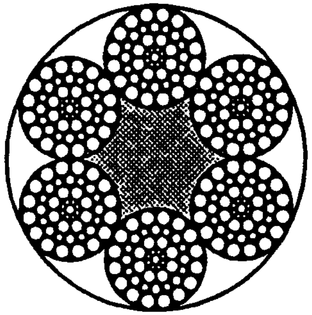
6x31 SW (12–6+6–6–1)–CF



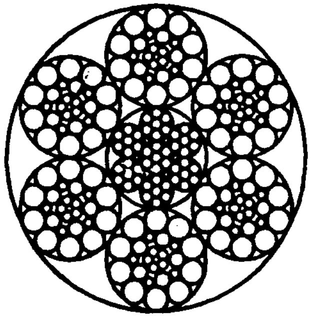
6x36 SW (14–7+7–7–1)–CF



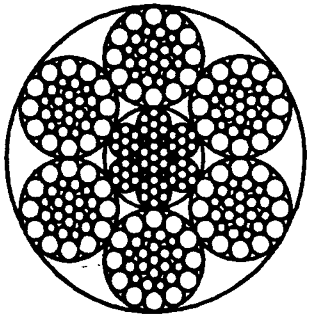
6x41(16–8+8–8–1)–CF



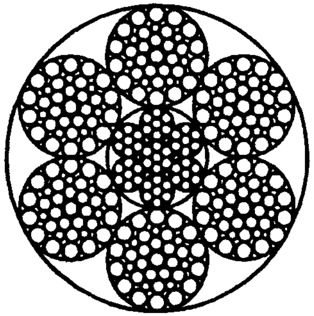
6x49 SWS (16–8+8–8–8–1)–CF



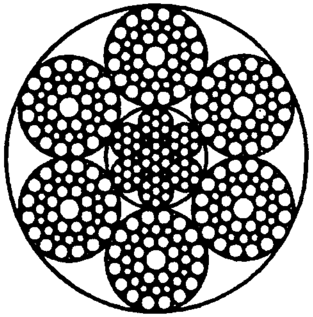
6x26 SW (10–5+5–5–1)–CWR



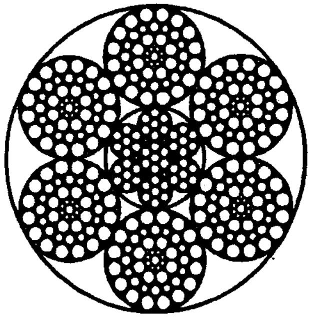
6x31 SW (12–6+6–6–1)–CWR



6x36 SW (14–7+7–7–1)–CWR



6x41(16–8+8–8–1)–CWR



6x49 SWS (16–8+8–8–8–1)–CWR

Table 4 (*Continued*)

Nominal Rope Diameter +4 −1 Percent	Approximate		Mass Minimum Breaking Force Corresponding to Rope Grade					
			1570		1770		1960	
	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
mm	kg/100 m		kN	kN	kN	kN	kN	kN
13	64.3	70.7	87.5	94.5	98.7	107	109	118
14	74.5	82.0	102	110	114	124	127	127
16	97.3	107	133	143	149	161	166	179
18	123	135	168	181	189	204	209	226
19	137	151	187	202	211	228	233	252
20	152	167	207	224	234	252	259	279
22	184	202	251	271	283	305	313	338
24	219	241	298	322	336	363	372	402
26	257	283	350	378	395	426	437	472
28	298	328	406	439	458	494	507	548
29	320	352	436	470	491	530	544	587
32	389	428	530	573	598	646	662	715
35	466	512	634	685	715	773	792	855
36	493	542	671	725	757	817	838	905
38	549	604	748	808	843	911	934	1 008
40	608	669	829	895	934	1 009	1 035	1 117
42	671	738	914	987	1 030	1 112	1 141	1 232
44	736	810	1 003	1 083	1 130	1 221	1 252	1 352

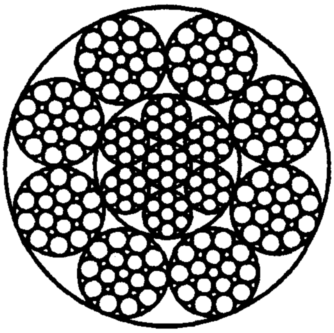
Table 4 (*Concluded*)

Nominal Rope Diameter $^{+4}_{-1}$ Percent	Approximate		Mass Minimum Breaking Force Corresponding to Rope Grade					
			1570		1770		1960	
	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
45	770	847	1 049	1 133	1 182	1 277	1 309	1 414
48	876	964	1 193	1 289	1 345	1 453	1 490	1 609
52	1 028	1 131	1 401	1 513	1 579	1 705	1 748	1 888
54		1 219		1 631		1 839		2 036
56		1 311		1 754		1 978		2 190
58		1 407		1 882		2 122		2 349
60		1 506		2 014		2 270		2 514
64		1 713		2 291		2 583		2 860
71		2 108		2 820		3 179		3 520
74		2 290		3 063		3 453		3 824

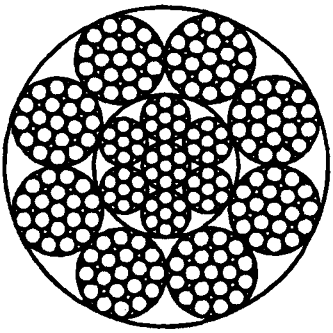
NOTE — To calculate the aggregate breaking force, multiply the figures shown in columns 4, 6 and 8 by 1.191 and columns 5, 7 and 9 by 1.28

Table 5 Size, Breaking Force and Mass for 8 × 21 F (10–5F–5–1) and 8 × 25 F (12–6F–6–1) Construction

(*Clauses* 4, 5 *and* 6.4)



8x21 F (10-5F-5-1)-CWR



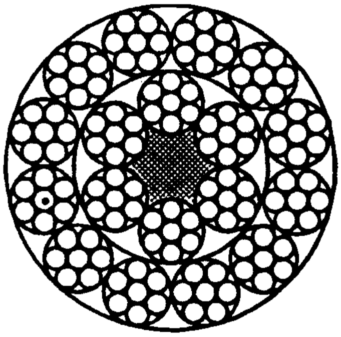
8x25 F (12-6F-6-1)-CWR

Nominal Rope Diameter $^{+4}_{-1}$ Percent	Approximate Mass kg/100 m	Minimum Breaking Force Corresponding to Rope Grade of		
		1570	1770	1960
	Steel Core (CWR)	Steel Core (CWR)		Steel Core (CWR)
(1)	(2)	(3)	(4)	(5)
mm		kN	kN	kN
13	73.5	91.9	104	115
14	85.2	107	120	133
16	111	139	157	174
18	141	176	199	220
19	157	196	221	245
20	174	218	245	272
22	210	263	297	329
24	251	313	353	391
26	294	368	414	459
28	341	426	481	532
29	366	457	516	571
32	445	557	628	695

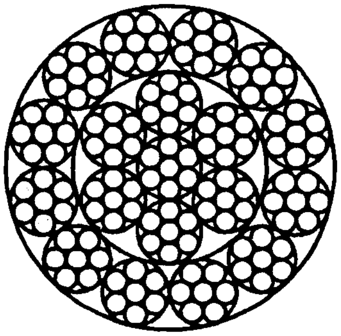
NOTE — To calculate the aggregate breaking force, multiply the figures shown in columns 3, 4 and 5 by 1.33.

Table 6 Size, Breaking Force and Mass for 18 × 7 (6−1) Construction

(*Clauses* 4, 5 *and* 6.4)



18x7[12x7(6−1):6x7(6−1)]−CF



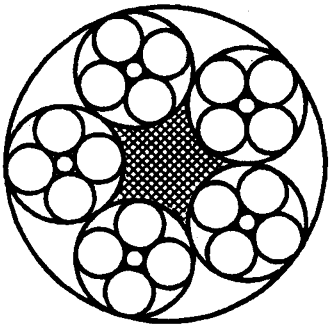
18x7[12x7(6−1):6x7(6−1)]−CWS

Nominal Rope Diameter $^{+4}_{-1}$ Percent	Approximate Mass		Minimum Breaking Force Corresponding to Rope Grade of			
			1770		1960	
	Fibre Core (CF)	Steel Core (CWS)	Fibre Core (CF)	Steel Core (CWS)	Fibre Core (CF)	Steel Core (CWS)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
mm	kg/100 m		kN	kN	kN	kN
13	64.7	67.9	95.3	98.1	106	109
14	75.0	78.8	111	114	122	126
16	98.0	103	144	149	160	165
18	124	130	183	188	202	208
19	138	145	204	210	225	232
20	153	161	226	232	250	257
22	185	195	273	281	302	311
24	220	232	325	335	360	370
26	259	272	381	393	422	435

NOTE — To calculate the aggregate breaking force, multiply the figures shown in columns 4 and 6 by 1.28 and columns 5 and 7 by 1.32.

Table 7 Size, Breaking Force and Mass for 5 × 5 (4–1) Construction

(*Clauses* 4, 5 *and* 6.4)



5x5(4–1)–CF

Nominal Rope Diameter	**Tolerance on Nominal Rope Diameter**	**Approximate Mass**	**Minimum Breaking Force Corresponding to Rope Grade of**	
			1570	1770
		Fibre Core (CF)	Fibre Core (CF)	
(1)	(2)	(3)	(4)	(5)
mm	Percent	kg/100 m	kN	kN
3	+7, –1	2.89	4.5	5.1
4	+6, –1	5.14	8.0	9.0
5	+6, –1	8.03	12.5	14.1
6	+5, –1	11.56	18.0	20.3
7	+5, –1	15.74	24.5	27.6
8	+4, –1	20.56	32.0	36.1

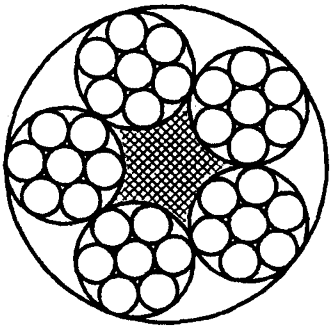
NOTES

1 Interpolation is allowed in steps of 0.2 mm since ropes in decimal of millimetre are required in actual practice.

2 To calculate aggregate breaking force, multiply the figures shown in columns 4 and 5 by 1.127.

Table 8 Size, Breaking Force and Mass for 5 × 7 (6–1) Construction

(*Clauses* 4, 5 *and* 6.4)



5×7(6–1)–CF

Nominal Rope Diameter	Tolerance on Nominal Rope Diameter	Approximate Mass	Minimum Breaking Force Corresponding to Rope Grade of	
			1570	1770
		Fibre Core (CF)	Fibre Core (CF)	
(1)	(2)	(3)	(4)	(5)
mm	Percent	kg/100 m	kN	kN
3	+7, –1	3.11	4.9	5.5
4	+6, –1	5.52	8.7	9.8
5	+6, –1	8.63	13.6	15.4
6	+5, –1	12.43	19.6	22.1
7	+5, –1	16.92	26.7	30.1
8	+4, –1	22.10	34.9	39.3

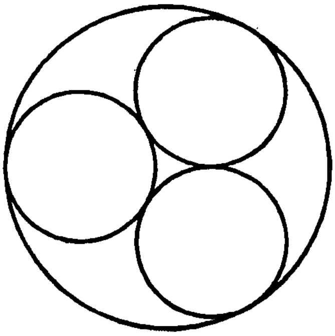
NOTES

1 Interpolation is allowed in steps of 0.2 mm since ropes in decimal of millimetre are required in actual practice.

2 To calculate aggregate breaking force, multiply the figures shown in columns 4 and 5 by 1.12.

Table 9A Size, Breaking Force and Mass for Galvanized Wire Guy Strand of 3 (3–0) Wire Construction

(*Clauses* 4, 5 *and* 6.4)



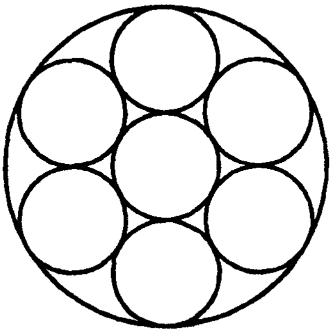
1x3(3–0)

Nominal Strand Diameter	Tolerance on Nominal Strand Diameter	Approximate Mass	Minimum Breaking Force Corresponding to Strand Grade of
			1230
(1)	(2)	(3)	(4)
mm	Percent	kg/100 m	kN
6.2	+4, –0	15.41	23.3
8.3	+4, –0	27.62	41.7
9.3	+4, –0	34.68	52.3

NOTE — To calculate aggregate breaking force, multiply the figures shown in column 4 by 1.03.

Table 9B Size, Breaking Force and Mass for Galvanized Wire Guy Strand of 7 (6–1) Wire Construction

(*Clauses* 4, 5 *and* 6.4)



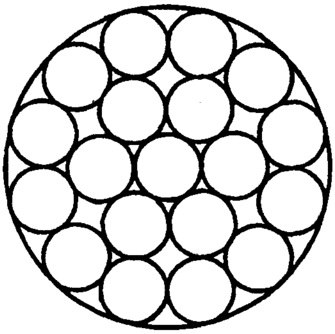
1x7(6-1)

Nominal Strand Diameter	**Tolerance on Nominal Strand Diameter**	**Approximate Mass**	**Minimum Breaking Force Corresponding to Strand Grade of**		
			450	1230	1570
(1)	(2)	(3)	(4)	(5)	(6)
mm	Percent	kg/100 m	kN	kN	kN
3	+4, –0	4.5	2.2	6.0	7.7
4	+4, –0	8.0	3.9	10.7	13.7
5	+4, –0	12.5	6.1	16.7	21.4
5.5	+4, –0	15.2	7.4	20.3	25.9
6	+4, –0	18.1	8.8	24.1	30.8
7	+4, –0	24.6	12.0	32.8	41.9
8	+4, –0	32.1	15.7	42.8	54.7
9	+4, –0	40.7	19.8	54.2	69.2
11	+4, –0	60.7	29.6	81.0	103
13	+4, –0	84.8	41.4	113	144
14	+4, –0	98.4	48.0	131	167
16	+4, –0	128	62.7	171	219

NOTE — To calculate aggregate breaking force, multiply the figures shown in columns 4, 5 and 6 by 1.111.

Table 9C Size, Breaking Force and Mass for Galvanized Wire Guy Strand of 19 (12/6–1) or (12:6–1) Wire Construction

(*Clauses* 4, 5 *and* 6.4)



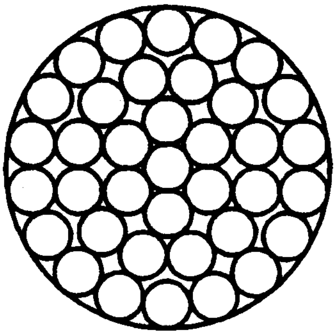
1x19 M (12/6–1)
1x19 J (12:6–1)

Nominal Strand Diameter	Tolerance on Nominal Strand Diameter	Approximate Mass	Minimum Breaking Force Corresponding to Strand Grade of		
			450	1230	1570
(1)	(2)	(3)	(4)	(5)	(6)
mm	Percent	kg/100 m	kN	kN	kN
13	+4, –0	83.7	39.9	109	139
14	+4, –0	97.1	46.3	127	162
16	+4, –0	127	60.5	165	211
19	+4, –0	179	85.3	233	298
22	+4, –0	240	114	313	399
25	+4, –0	310	148	404	515

NOTE — To calculate aggregate breaking force, multiply the figures shown in columns 4, 5 and 6 by 1.136.

Table 9D Size, Breaking Force and Mass for Galvanized Wire Guy Strand of 37 (18/12/6–1) or (18:12:6–1) Wire Construction

(*Clauses* 4, 5 *and* 6.4)



1x37 M (18/12–6–1)
1x37 J (18:12:6–1)

Nominal Strand Diameter	Tolerance on Nominal Strand Diameter	Approximate Mass	Minimum Breaking Force Corresponding to Strand Grade of		
			450	1230	1570
(1)	(2)	(3)	(4)	(5)	(6)
mm	Percent	kg/100 m	kN	kN	kN
25	+4, –0	306	146	399	509
29	+4, –0	411	196	536	684
32	+4, –0	501	239	653	833

NOTE — To calculate aggregate breaking force, multiply the figures shown in columns 4, 5 and 6 by 1.136.

Table 10 Requirements for Well Measuring Wire

(*Clauses* 4, 5 *and* 6.4)

Nominal Wire Diameter	Tolerance on Wire Diameter	Approx Wire Mass	Elongation on 250mm Gauge Length, Percent		Breaking Force of Wire	Minimum Number of Twist on a Gauge Length of 100 × Nominal Wire Diameter
			Min	*Max*	*Min*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
mm	mm	kg/100 m			kN	
1.70	± 0.03	1.78	1.5	3.00	3.7	32
1.80	± 0.03	2.00	1.5	3.00	4.1	30
2.00	± 0.03	2.47	1.5	3.00	5.0	25
2.36	± 0.03	3.43	1.5	3.00	7.0	25

6 GENERAL REQUIREMENTS

The wire ropes, wire strands and wires shall conform to IS 6594 and shall also meet the following requirements.

6.1 The wire for guy strands shall be of mild steel of condition 'soft' complying with IS 280 having a minimum tensile strength of 450 N/mm^2.

6.2 Core

Use of jute core is not permitted. Steel core may be of independent wire rope core or wire strand core as required.

6.3 Joints

No tucked joints shall be used. In well-measuring wires no joints shall be used.

6.4 Mass

The masses given in Tables 1 to 10 are for fully greased ropes. The ropes, which are not greased, may be lighter.

6.5 Lay of the Rope

The lay of the rope shall be either langs lay or ordinary lay and shall be right hand or left hand as specified by the purchaser. If not otherwise specified, right hand ordinary lay rope shall be furnished. The torpedo line shall be right hand ordinary lay.

6.6 Length of Lay

For ropes 5×5, 5×7 and 6×7 constructions, the length of lay shall not exceed eight times the nominal diameter of the rope. For ropes of all other constructions covered by this specification, the length of lay shall not exceed 7 ¼ times the nominal diameter of the finished rope. The length of lay for the guy strands shall not be more than 16 times the nominal diameter of the strand.

7 GALVANIZING

The wire ropes, strands and wires shall be supplied as bright or galvanized. The type of galvanizing shall be as agreed to between the purchaser and the supplier.

8 LUBRICATION

All wire ropes shall be lubricated thoroughly by a suitable compound during manufacturing process unless otherwise specified. Lubrication for strands and wires shall be as agreed to between the purchaser and the manufacturer.

9 MARKING

9.1 The size, construction, rope grade, lay, core, coating and length of wire rope, reel/coil no along with the order number of purchaser and any other marking which may be specified by the purchaser shall be legibly mentioned on a suitable tag securely attached, when wire ropes are supplied in coils. In case wire ropes are supplied in reels, the information may be stenciled on both sides of the reels or stenciled on one side of the reel and a suitable tag giving the same information may be attached on the other side of the reel.

9.2 BIS Certification Marking

9.2.1 The product may also be marked with the Standard Mark.

9.2.2 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which a license for the use of the Standard Mark may be granted to the manufacturers or the producers may be obtained from the Bureau of Indian Standards.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Wire Ropes and Wire Products Sectional Committee, ME 10

Organization	*Representative(s)*
Directorate General of Mines Safety, Dhanbad	Shri D. Saha (*Chairman*) Shri Dinesh Pandey (*Alternate*)
Aerial Ropeway and Mechanical Handling Co Pvt Ltd, Kolkata	Shri A. K. Kinra Shri Ranjan Mukherjee (*Alternate*)
Amar Promoters Pvt Ltd, Solan	Shri Virender Agarwal
Bharat Coking Coal Ltd, Dhanbad	Shri R. K. Prasad
Bharat Wire Ropes Ltd, Mumbai	Shri D. M. Shah
Central Mining Research Institute, Dhanbad	Shri S. P. Chaudhary Shri R. P. Chakraborty (*Alternate*)
Directorate General of Aeronautical Quality Assurance, New Delhi	Shri S. B. Prasad Shri Sanjay Chawla (*Alternate*)
Directorate General of Civil Aviation, New Delhi	Shri R. C. Sharma Shri N. M. Walecha (*Alternate*)
Directorate General of Supplies and Disposals, New Delhi	Shri M Gangaraju Shri S. M. Munjal (*Alternate*)
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National Test House, Ghaziabad	Shri D. S. Majumdar Shri B. N. Sarkar (*Alternate*)
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Research, Designs and Standards Organization, Lucknow	Deputy Director (Standards)
South Eastern Coalfields Ltd, Kolkata	Shri S. K. Mishra Shri G. Ramaswami (*Alternate*)
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Vidarbha Hardware Industries, Akola	Shri O. P. Dalmia Shri Sanjay K. Dalmia (*Alternate*)
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This Indian Standard has been developed from Doc : No. ME 10 (472).

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Printed at New India Printing Press, Khurja, India